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DN 133:282384

TI Synthesis of nonlinear optical maleimide copolymer by polymer reaction and its electro-optic properties

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SO Kongop Hwahak (2000), 11(2), 151-156

CODEN: KOHWE9; ISSN: 1225-0112

PB Korean Society of Industrial and Engineering Chemistry

DT Journal

LA Korean

CC 37-3 (Plastics Manufacture and Processing)

Section cross-reference(s): 73

AB Novel polymers which exhibit non-linear optical (NLO) properties have been synthesized and their electrooptical properties were examd.

N-(4-Hydroxyphenyl)maleimide-.alpha.-methylstyrene copolymer

(MSHM) and N-(4-carboxyphenyl)maleimide-.alpha.-methylstyrene

copolymer (MSCM) were obtained readily by radical polymn

. Etherification (94.3%) of MSHM and esterification (33.0%) of MSCM with C.I. Disperse Red 1 (DR) chromophore was conducted

using the Mitsunobu reaction. The glass transition temp. of the NLO

polymers was in the range of 185-217.degree.C. The electrooptical

coeffs. (r33) were detd. with an exptl. setup capable of the real-time

measurement while varying the poling field and temp. The NLO

polymer MSHM-DR exhibited higher r33 values than MSCM-DR due to

the increased substitution by the DR chromophores in the latter. MSHM-DR

had a max. r33 value of 26 pm/V at 135 MV/m poling field with a 632.8 nm

light source.

ST hydroxyphenylmaleimide methylstyrene copolymer etherification

azo dye; carboxyphenylmaleimide methylstyrene copolymer

esterification azo dye; methylstyrene maleimide deriv polymer

NLO property; azo dye deriv NLO polymer

IT Electrooptical effect

(of azo dye-modified hydroxyphenyl- and carboxyphenylmaleimide polymers)

IT Nonlinear optical materials

(prepn. of azo dye-modified hydroxyphenyl- and carboxyphenylmaleimide polymers)

IT 2872-52-8, C.I. Disperse Red 1

RL: RCT (Reactant); RACT (Reactant or reagent)

(esterification of carboxyphenylmaleimide polymer with)

IT 2872-52-8DP, C.I. Disperse Red 1, ether with

N-(4-hydroxyphenyl)maleimide-.alpha.-methylstyrene copolymer

152590-68-6DP, ether with C.I. Disperse Red 1

299433-78-6P, N-(4-Carboxyphenyl)maleimide-.alpha.-methylstyrene

copolymer ester with C.I. Disperse Red

1
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(prepn. and NLO properties of)

IT 299428-85-6P, N-(4-Carboxyphenyl)maleimide-.alpha.-methylstyrene

copolymer

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(prepn. and esterification with C.I. Disperse Red 1

azo dye)

IT 152590-68-6P, N-(4-Hydroxyphenyl)maleimide-.alpha.-methylstyrene

copolymer

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(prepn. and etherification with C.I. Disperse Red 1

azo dye)

US

film pyrosensors
 Ludwig; Kaminorz, Yvette; Grasnick, Gerd; Herkner, Georg
 solid State Physics, University Potsdam, Potsdam, D-14469,

Molecular Symposia (1996), 102(9th Rolduc Polymer Meeting, Smart
 Polymer Materials & Products, 1995), 391-8

CODEN: MSYMEC; ISSN: 1022-1360

Huethig & Wepf

Journal

English

76-6 (Electric Phenomena)

Section cross-reference(s): 38

- AB The pyroelec. response and pyroelec. relaxation were measured, of thin films of poled poly(vinyl alc.)-azobenzene side chain (PVA-Az) and of a polysiloxane. The poly(siloxane) is poly(dimethylsiloxane) with an ester of the Disperse Red 1 azo dye on the side chain (PS-Az). Measurements of both materials were carried out by a dynamic method with a frequency-modulated laser diode and by a static method. The PVA-Az has pyroelec. properties comparable to those of other pyroelec. materials and can be processed into thin films. The pyroelec. response of PS-Az undergoes a relatively quick decay at room temp. The pyroelec. response of PVA-Az can be controlled by applying d.c. voltage to the electrodes of a pyroelec. sensor, in the same direction as the poling voltage. Pyroelec. detectors with electrodes arranged in a lateral configuration and an auxiliary electrode which can also function as a radiation absorbing layer, were designed.
- ST polyvinyl alc azobenzene pyroelec response; polysiloxane azo dye pyroelec response decay; sensor pyroelec film polyvinyl alc azobenzene
- IT Electrooptical effect
 (poling; pyroelec. response of PVA-azobenzene films and electrode configuration in pyroelec. sensor)
- IT Pyroelectricity
 (response; pyroelec. response of PVA-azobenzene films and electrode configuration in pyroelec. sensor)
- IT Siloxanes and Silicones, properties
 RL: PRP (Properties)
 (stability of pyroelec. response of polysiloxane films with azo dye side group)
- IT Pyroelectric substances
 (thin-film materials; pyroelec. response of PVA, azobenzene films and electrode configuration in pyroelec. sensor)
- IT 9002-89-5D, Poly(vinyl alcohol), azobenzene derivs. 142747-37-3D, 4'-n-Dodecyloxyazobenzene-4-carboxylic acid, PVA derivs.
 RL: DEV (Device component use); PRP (Properties); USES (Uses)
 (pyroelec. response of PVA-azobenzene films and electrode configuration in pyroelec. sensor)
- IT 2872-52-8D, Disperse Red 1, polysiloxane derivs.
 9016-00-6D, Di-Me siloxane, SRU, azo dye ester derivs.
 31900-57-9D, Dimethylsilanediol homopolymer, azo dye ester derivs.
 RL: PRP (Properties)
 (stability of pyroelec. response of polysiloxane films with azo dye side group)

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1999:559297 CAPLUS

132:167296

Application of new poly(malonic ester) with two symmetrical photoresponsive groups to erasable optical data storage media

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Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (1999), 40(2), 1234

CODEN: ACPPAY; ISSN: 0032-3934

American Chemical Society, Division of Polymer Chemistry

Journal

English

38-3 (Plastics Fabrication and Uses)

Novel liq. cryst. malonic ester monomer with **disperse**

red 1 was synthesized from malonyl dichloride and **disperse**

red. The monomer was polymd. with 1,6-dibromohexane in the

presence of sodium hydride to give new poly(malonic ester) with two sym.

photosensitive groups in the side chain. The resulting polymer is an

excellent reversible optical information recording media for data storage

and retrieval through a trans-cis isomerization of the azobenzene units by

Ar laser irradiation and thermal process.

polymalonic ester photosensitive optical data storage

Heat treatment

Lasers

Optical recording

Photoelectric devices

(application of new poly(malonic ester) with two sym. photoresponsive groups to erasable optical data storage media)

141-82-2D, Malonic acid, ester, polymers 2872-52-8D,

Disperse Red 1, polymers

RL: PEP (Physical, engineering or chemical process); PROC (Process)

(application of new poly(malonic ester) with two sym. photoresponsive groups to erasable optical data storage media)

4 ANSWER 96 OF 96 INSPEC COPYRIGHT 2003 IEE
AN 1999:6384232 INSPEC DN A1999-23-4270J-001
TI Synthesis of new poly(malonic **ester**) containing **disperse red 1** and its applications to optical data storage.
AU Yang-Kyoo Han; Hai-Sub Na (Dept. of Chem., Hanyang Univ., Seoul, South Korea); Cha-Hwan Oh
SO Molecular Crystals and Liquid Crystals (1999) vol.327, p.271-4. 3 refs.
Published by: Gordon & Breach
CODEN: MCLCE9 ISSN: 1058-725X
SICI: 1058-725X(1999)327L:271:SPME;1-K
Conference: Korea-Japan Joint Forum 1998. Sapporo, Japan, 30 June-1 July 1998
DT Conference Article; Journal
TC Experimental
CY Switzerland
LA English
AB New poly(malonic **ester**) with two symmetrical azobenzene groups was synthesized by the reaction of novel liquid crystalline malonic **ester** monomer with **disperse red 1** with 1,6-dibromohexane. The resulting **polymer** was found to be excellent as reversible optical information recording media for data storage and retrieval through a trans-cis isomerization of the azobenzene units by Ar laser irradiation and thermal process.
CC A4270J Optical polymers and other organic optical materials; A4270D Liquid crystals (optical materials); A4280T Optical storage and retrieval
CT LIQUID CRYSTAL **POLYMERS**; OPTICAL **POLYMERS**; OPTICAL STORAGE
ST poly(malonic **ester**); **disperse red 1**; optical data storage; symmetrical azobenzene groups; 1,6-dibromohexane; reversible optical information recording media; trans-cis isomerization; Ar laser irradiation
ET Ar